

Cell Salvage of Blood during Caesarean Section

Information for Pregnant Women

What is cell salvage and why might I need it?

During a caesarean section it is normal for you to lose about 300-500ml of blood. Sometimes there is more bleeding and you may need a blood transfusion. A blood transfusion is usually blood that has been donated from other people. Cell salvage is a process where your own blood that is lost during the operation is collected, cleaned by a machine and returned to you.

Both donated and cell salvaged blood are given only when necessary and help to reduce post-operative complications such as anaemia, tiredness and shortness of breath.

A large UK study has shown that using cell salvage for caesarean section is safe. The use of cell salvage is one of the tools we can use to efficiently manage larger amounts of bleeding during caesarean section, alongside medications and donated blood. We usually use cell salvage in the following situations:-

- when we think you have a high risk of large blood loss during your caesarean section
- if you are very anaemic before having your operation
- if you have expressed a wish not to be given blood or blood products during or after your operation.

Below is some more information about cell salvage and how we use cell salvage during caesarean sections. If you have any questions after reading this, you can discuss this with your obstetrician or anaesthetist before your surgery.

How cell salvage works

The blood that is lost during caesarean section is collected into a tank. If enough blood is collected it is then filtered and washed. It is then stored in a bag ready to be given back to you through your cannula (a small plastic tube, also called a drip). You will only be given this blood back if you need it, and it may still be necessary to give you donated blood, unless you have refused this. The salvaged blood can be given to you while the donated blood comes from the lab.

Are there risks from cell salvaged blood?

Cell salvage has been used safely in many thousands of patients worldwide since the 1970s. Its use during caesarean section was initially limited because of safety concerns, however a large UK study showed no major adverse events when cell salvage was used in

over 3000 women during caesarean section. There are still some things we do not know about use of cell salvage in pregnancy however.

Specific risks

Amniotic fluid embolism

This happens when some of the fluid surrounding the baby in the womb enters the mother's blood stream and causes a serious allergic reaction. It is very rare, occurring in less than 1 in 20,000 deliveries. Studies have suggested that amniotic fluid is completely removed by the washing process during cell salvage. The chance of amniotic fluid embolism when receiving cell salvage blood is estimated to be the same as a normal delivery.

Antibodies developing from exposure to baby's blood

As well as your own blood some of your baby's cells will be present in the fluid collected during cell salvage. If your baby is a different blood type to you there is a risk that your body will make antibodies against baby's blood cells present in the salvaged blood. We do not know how much of baby's cells get into the salvaged blood, whether these are washed away during the salvage process or how much exposure will cause you to make antibodies.

If you are rhesus negative and baby is rhesus positive there is a risk of you developing antibodies from your baby's cells during pregnancy and childbirth. You will be given anti-D in order to prevent this happening. You may need a larger dose of anti-D after cell salvage but otherwise your treatment will be the same.

It is possible for you to make antibodies against other parts of baby's blood for which we do not have a treatment yet. If you have antibodies it may make it harder to match your blood if you need a blood transfusion or transplant in the future and may be important in future pregnancies.

What about donated blood transfusions?

All donated blood used in the UK is thoroughly screened for infections and is safe. The blood is also carefully matched to you to minimise the risk of you having a reaction or making antibodies against the donor blood. Very rarely you can still have a reaction to donated blood.

What happens next?

If we intend to use cell salvage, we will discuss this with you before your operation. If you have any questions about cell salvage please discuss this with your doctor. If you have any objections to having cell salvaged blood, we can discuss these and record your wishes in your notes.

Any more questions?

Your obstetrician or your anaesthetist will be happy to discuss any further questions you have.

References

1. Khan K, Moore P, Wilson M et al. Cell salvage and donor blood transfusion during caesarean section: A pragmatic, multicentre randomised controlled trial (SALVO). *AJOG*; 216(1). Supplement S559.
2. Klein A, Bailey C, Charlton A et al. Association of Anaesthetists guidelines: cell salvage for peri-operative blood conservation 2018. *Anaesthesia*; 73(9) 1141-1150.